

## **REMARKS**

Claims 1-37 were pending. Claims 13-34 have been withdrawn. Claims 2, 3, 7 and 8 have been cancelled without prejudice. The specification, and claims 1, 9, 10, 12-20, 23-25, 28, 31, 33-35, and 37 have been amended. No new matter has been added.

The specification has been amended to correct the title of Example 25 to read "Comparative Catalyst Example 25".

Claims 1, 13-18, 35 and 37 have been amended to specify that the catalyst is a transition metal catalyst. Support for these amendments can be found, for example, on page 1, lines 13-16.

Claims 1, 13, 15 and 17 have also been amended to specify that the permeable polymer microcapsule shell is formed by interfacial polymerization, the transition metal catalyst and the ligand encapsulated within the permeable polymer microcapsule shell are discrete, and transition metal catalyst comprises a transition metal selected from the group consisting of platinum, palladium, osmium, ruthenium, rhodium, iridium, rhenium, scandium, cerium, samarium, yttrium, ytterbium, lutetium, cobalt, titanium, chromium, copper, iron, nickel, manganese, tin, mercury, silver, gold, zinc, vanadium, tungsten and molybdenum. Support for the permeable polymer microcapsule shell being formed by interfacial polymerization, support can be found, for example, on page 2, lines 24-31. Support for the catalyst and ligand being "discrete", can be found, for example, on page 1, lines 7 to 9; page 9, lines 31 to 32; page 11, line 1; page 12, line 35; page 14, lines 4 to 9; and Examples 7 to 24. Support for the transition metal being selected from the group consisting of platinum, palladium, osmium, ruthenium, rhodium, iridium, rhenium, scandium, cerium, samarium, yttrium, ytterbium, lutetium, cobalt, titanium, chromium, copper, iron, nickel, manganese, tin, mercury, silver, gold, zinc, vanadium, tungsten and molybdenum, can be found, for example, on page 1, line 20-24.

Claim 9 has been amended to replace "comprising" with "comprises" to correct a grammatical error; and further amended to depend on claim 1, in light of the cancellation of claim 8, on which it previously depended.

Claim 10 has been amended to replace "hetroatoms" with "heteroatoms".

Claims 12 and 33 have been amended to remove the equal sign from the claim, replacing "where Cy = cyclohexyl" with "wherein Cy represents cyclohexyl".

Claims 13-18 and 37 have been further amended to specify that the microcapsule shell or shell is a permeable polymer microcapsule shell. Support for these amendments can be found, for example, on page 14, lines 10-14.

Claims 13, 17, 18, 20 and 23 have been amended to replace “polymerisation” with “polymerization”.

Claims 13, 16 and 18 have been further amended to state more clearly that the claims are providing steps for forming a permeable polymer microcapsule shell by interfacial polymerization. In addition, step (d) (*i.e.*, treating the microcapsules with a ligand) in claims 16 and 18 has been removed because it was redundant.

Claims 19, 20, 23, 28, 31 and 34 have been amended to replace “any one of Claims 13, 15 or 17” with “Claim 13, 15 or 17”. Likewise, claims 24 and 25 have been amended to replace “any one of Claims 14, 16 or 18” with “Claim 14, 16 or 18”.

Importantly, the claim amendments and cancelations should not be construed to be an acquiescence to any of the claim rejections. Rather, the amendments and cancellation are being made solely to claim more clearly the invention and to expedite the prosecution of the above-identified application. The right to further prosecute the same or similar claims in subsequent patent applications claiming the benefit of priority to this application is reserved. 35 U.S.C. § 120.

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

### **RESPONSE TO CLAIM OBJECTIONS**

Claim 3 is objected to because of the following asserted informality: “polymerisation” is misspelled. Claim 3 has been cancelled, rendering this objection moot. Therefore, the Applicant respectfully requests the withdrawal of the claim objection.

### **RESPONSE TO REJECTIONS UNDER 35 USC § 102(e)**

Claims 1-12 and 35-37 are rejected as being anticipated by *Ley et al.* (WO 03/006151). Applicant has considered the grounds upon which the rejection rests, and respectfully submits

that the rejection is improper because Ley does not teach all of the limitations of the claims, nor is Ley enabling with respect to the claimed subject matter.

MPEP § 2131 states that to anticipate a claim under 35 USC § 102, a reference must teach every element of the claim. The Applicants respectfully assert that Ley does not teach every element of the pending claims. For example, Ley does not teach permeable polymer microcapsules comprising a catalyst and a ligand wherein the catalyst and the ligand are discrete. As noted above, support for the catalyst and ligand being “discrete” can be found, on page 1, lines 7 to 9, which state that microencapsulation of the catalyst takes place in the presence of the ligand; as well as page 9, lines 31 to 32, which state that the ligand is encapsulated along with the catalyst. Furthermore, throughout the description there is reference to microencapsulation of the catalyst and the ligand, e.g., page 11, line 1; page 12, line 35; and page 14, lines 4 to 9. In addition, Examples 7 to 24 refer to coencapsulation of the catalyst and ligand, or post-adsorption of catalyst or ligand. Importantly, catalyst as used in the claims refers to a transition metal catalyst as defined on page 1, lines 14-16 (which includes (a) the transition metal itself, normally finely divided or in colloidal form; (b) a complex of a transition metal, such as Pd(OAc)<sub>2</sub>; and (c) a compound containing the transition metal). Therefore, a person of ordinary skill would understand from the specification that the catalyst and the ligand are discrete in the product formed by the interfacial polymerization process. The pending claims are directed to such microencapsulated catalyst-ligand complexes where the catalysts and ligands are encapsulated as discrete entities, i.e. they do not form a conventional complex wherein the catalyst is bound to the ligand. This fact is in contrast to both of the examples provided in Ley, which only describe the microencapsulation of metals, as well as the conventional catalysts suggested by Ley (Ley, pages 8-9).

To further support the Applicant’s contention that the Ley’s microencapsulated catalysts are not the same as those claimed, the Applicant directs the Examiner’s attention to the tables on pages 33 and 34 which compare catalytic performance of comparative catalyst example 1 (i.e., a catalyst according to Ley) with catalyst examples 7, 8, 9 and 10 of the invention. In all of the data presented, the microencapsulated catalytic systems of the present invention demonstrated better catalytic activity, as measured by both reaction rate and product yield after 20 hours.

In addition, assuming *arguendo* that the Examiner maintains that Ley teaches all of the limitations of the pending claims, the Applicant respectfully asserts that Ley does not provide enough direction or guidance to allow a skilled artisan to arrive at the claimed invention. MPEP § 2121.01 states that in order for a cited art document to anticipate a claim, the art must provide an enabling disclosure of the claimed subject matter. This section of the MPEP goes on to state that the mere naming or description of the subject matter is insufficient; rather, the cited art must demonstrate that the public was in possession of the claimed subject matter before the date of invention. In other words, the cited art must describe the claimed subject matter in such detail to enable one of ordinary skill in the art to make the claimed subject matter without undue experimentation. In addition, the Federal Circuit recently held that a cited reference was unavailable as prior art under 35 USC § 102 if the cited art was not enabled. *Impax Laboratories Inc. v. Aventis Pharmaceuticals Inc.*, 88 USPQ2d 1381 (Fed. Cir. 2008) (“*Impax*”). Specifically, in *Impax* the reference in question was found not to be anticipatory because it contained only “broad and general” guidelines and no “sufficient direction or guidance” that specifically pointed to the claimed invention. It is respectfully asserted that Ley is not enabling with respect to the claimed permeable polymer microencapsulated catalyst-ligand systems, wherein the catalyst and ligand are discrete, because Ley does not provide sufficient guidance nor direction to one of skill in the art to make and use the claimed subject matter. Specifically, because Ley does not provide any examples or teaching of discretely microencapsulating a catalyst and a ligand, and Ley does not provide any guidance that one should incorporate the catalyst and ligand discretely, Ley is not enabled. Thus, the Applicant respectfully asserts that Ley is not anticipatory art.

Accordingly, based on the arguments presented above and/or the amendments to the claims, it is respectfully submitted that the rejections of claims 1-12 and 35-37 under 35 USC § 102(e) are overcome and the Applicant respectfully requests that the rejections be withdrawn.

## CONCLUSION

In light of the foregoing amendments and remarks, it is respectfully submitted that the pending claims are in condition for allowance. Reconsideration and allowance of the pending claims is respectfully solicited. If a telephone interview would be helpful, the Examiner is invited to call the undersigned at 617-832-1000. Lastly, Applicant hereby requests a three-month extension of time, and that the required fee and any other fees required for timely consideration of this paper be charged to Deposit Account No. **06-1448**, Reference No. **HGX-012.01**.

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